Supplementary Information

Allylic ionic liquid electrolyte-assisted electrochemical surface passivation of $LiCoO_2$ for advanced, safe lithium-ion batteries

Junyoung Mun[1,2], Taeeun Yim[1,3*], Jang Hoon Park[4], Ji Heon Ryu[5], Sang Young Lee[4], Young Gyu Kim[1], & Seung M. Oh[1]*

[1]Department of Chemical and Biological Engineering, Seoul National University, Seoul 151-744, Korea

[2]Energy and Chemical Engineering, Incheon National University, Incheon 406-840, Korea

[3]Advanced Batteries Research Center, KETI, Gyunggi-do 463-816, Korea

[4]School of Green Energy, UNIST, Ulsan 689-798, Korea

[5]Graduate School of Knowledge-based Technology, Korea Polytechnic University, Gyunggi-do 429-793, Korea

Correspondence and requests for materials should be addressed to S.M.O. (seungoh@snu.ac.kr)

*these authors contributed equally to this work

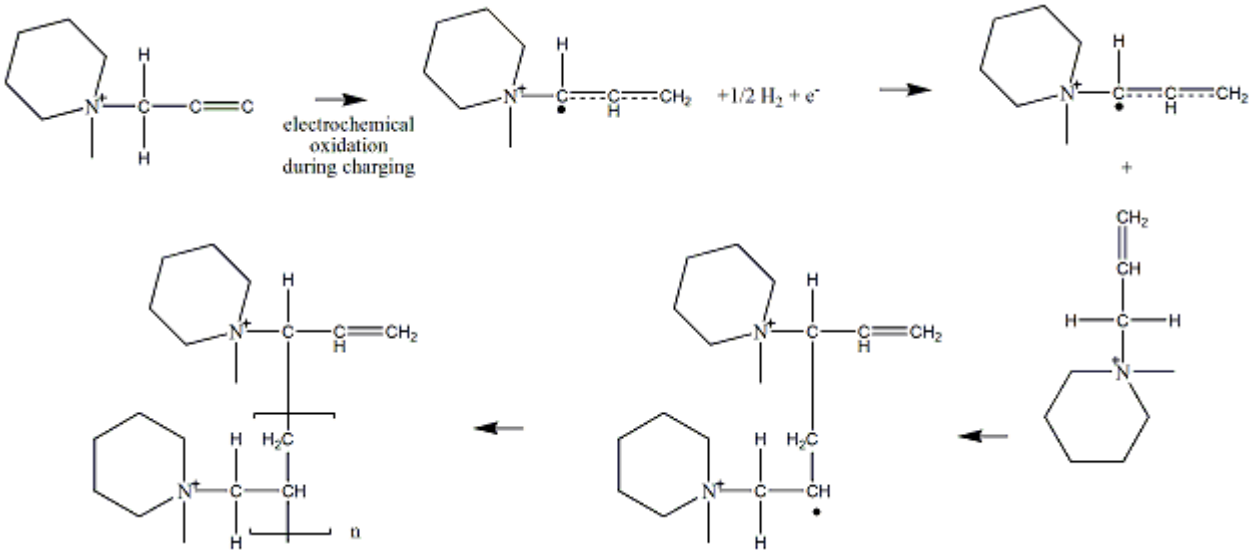

Figure S1. The radical stabilization mechanism on the 1-allyl-1-methylpiperidinium cation of room temperature ionic liquid.

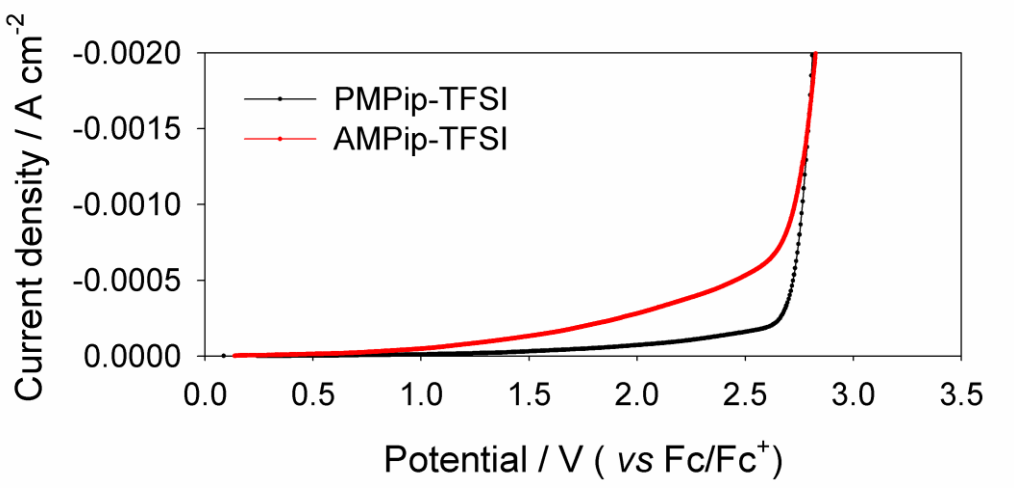

Figure S2. Cyclic voltammograms obtained with a working electrode of glassy carbon in the PMPip-TFSI and AMPip-TFSI (scan rate : 10 mV s^{-1}, temperature: 25 ℃)